APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,146	04/14/2004	Daniel James Winarski	TUC920040008US1	7829

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ART UNIT	PAPER NUMBER
2186	

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/825,146	WINARSKI ET AL.
	Examiner	Art Unit	
	Michael Krofcheck	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on <u>14 April 2004</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-18</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-18</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>14 April 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to application 10/825,146 filed on 4/14/2004.

2.   Claims 1-18 have been submitted and examined.

Specification

3.   Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4.   The abstract of the disclosure is objected to because it contains the phrase,

"Disclosed are a..." as it is clear that the information being presented is being disclosed.

Correction is required. See MPEP § 608.01(b).

5.   The disclosure is objected to because of the following informalities:

a.   The cross-references to related applications section needs to be updated.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

6.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7.   Claims 16-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 16-18 are not limited to tangible embodiments. In view of the applicant's disclosure, specification page 18, paragraph 0035, the medium is not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g., volatile and non-volatile memory) and intangible embodiments (e.g., signals propagating through space, radio waves, infrared signals). As such, the claim is not limited to statutory subject matter and is therefore non-statutory.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9.   Claims 8-9 rejected under 35 U.S.C. 102(b) as being anticipated by Curtis et al., US patent 5233576.

10.   With respect to claim 8, Curtis teaches of a data storage device, comprising: a data storage media for storage of data (fig. 1, 2; item 126, 200);

a processor for controlling said data storage device (fig. 1; item 124; column 5, lines 4-7; the controller must contain a processor);

a WORM memory coupled to said processor for storage of a LBA WORM utilization bit (fig. 1, 2; item 126, 200; column 4, lines 40-49; as when the storage bit is set, it cannot be changed, it is stored in a WORM); and

a host device interface coupled to said processor for receiving commands from a host computer (fig. 1; item 122; column 4, line 56-column 5, line 4).

11.   With respect to claim 9, Curtis teaches of wherein said data is stored as WORM data on said data storage media (column 7, lines 5-24; where the data is written into the sector and the state of the sector is changed to read-only).

Claim Rejections - 35 USC § 103

12.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

14.   This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15.   Claims 1-3, 7, 16-18 rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis et al., US patent 5233576 and Takahashi, US patent 6373800.

16.   With respect to claims 1 and 16, Curtis teaches of a method for writing data on a data storage device, comprising: said data storage device receiving a write command (fig. 1; column 4, lines 59-61, column 4, line 68-column 5, line 7; as the processor transfers data to the data storage device, it is abundantly clear to one of ordinary skill in the art that it involves a write command);

obtaining a LBA WORM utilization bit from a WORM memory for each of said one or more destination LBAs (fig. 6; column 6, line 66-column 7, line 3); and

in response to said LBA WORM utilization bit indicating a rewriteable LBA for each of said one or more destination LBAs, executing said write command to write data to said one or more destination LBAs (fig. 6; item 608, 610 column 7, lines 3-7)

an article of manufacture comprising a data storage medium embodying a program of machine-readable instruction executable by a digital processing apparatus to perform the method steps (fig. 1; column 5, lines 4-7).

Takahashi teaches of obtaining a starting LBA and a LBA transfer length from said write command (column 9, lines 45-51);

using said starting LBA and said LBA transfer length to determine one or more destination LBAs for writing data to (column 9, lines 45-51; the starting logic number sector ad the number of blocks directly indicate the destination LBAs);

It would have been obvious to one of ordinary skill in the art having the teachings of Curtis and Takahashi at the time of the invention to use the write command contents of Takahashi in Curtis. Their motivation would have been to allow the processor to organize the data being written to the media by specify is location, this helps to efficiently store the data.

17.   With respect to claims 2 and 17, Curtis teaches of in response to said LBA WORM utilization bit indicating a WORM LBA for any of said one or more destination LBAs, not executing said write command (fig. 6; item 608; column 7, lines 4-5).

18.   With respect to claims 3 and 18, the combination of Curtis and Takahashi teaches of obtaining a WORM bit from said write command (column 7, lines 17-24; it is abundantly clear to one of ordinary skill in the art to integrate the change-state command with the write command to reduce the traffic over the system bus, and increase the processing efficiency); and

in response to determining that said write command executed without errors and that said WORM bit indicates WORM data, setting said LBA WORM utilization bit for said one or more destination LBAs in said WORM memory to indicate WORM data (column 7, lines 17-24; it is abundantly clear to one of ordinary skill in the art to ensure that the writing has executed without errors before changing the state of the written data to read only, as if it were changed when there were errors, the result would be corrupted space on the storage device that is unusable).

19.   With respect to claim 7, Curtis teaches of wherein said write command writes said data as WORM data on said data storage device (column 7, lines 5-24; where the data is written into the sector and the state of the sector is changed to read-only).

20.   Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis as applied to claim 8 above, and further in view of Takahashi.

21.   With respect to claim 10, the combination of Curtis and Takahashi teach of the limitations cited above with respect to claims 1 and 16.

22.   Claim 4-6 rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis and Takahashi as applied to claim 1 above, and further in view of Assouad, US patent 6084739.

23.   With respect to claims 4 and 5, Assouad teaches of in response to determining that said write command executed with at least one error, rewriting the data beginning at said starting LBA (fig. 7; column 6, lines 53-67; the write operation is retried at the targeted address, when an error occurs).

It would have been obvious to one of ordinary skill in the art having the teachings of Curtis, Takahashi and Assouad at the time of the invention to retry the write operation at the target address upon the occurrence of an error in the combination of Curtis and Takahashi as taught in Assouad. Their motivation would have been to ensure that the proper data is efficiently stored in the storage device without having to restart the writing process over again.

24.   With respect to claim 6, the combination of Curtis, Takahashi, and Assouad teaches of in response to determining that said write command executed with at least one error, rewriting said data beginning at a LBA that is greater than said starting LBA (it is abundantly clear to one of ordinary skill in the art that when an error keeps occurring in a write operation, that the desired location maybe corrupt and to store the data at a location following the corrupt location to continue carrying out the instructions).

25.   Claims 11-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis as applied to claim 8 above, and further in view of Debiez et al., US patent application publication 2003/0126359 and Morgan, III, US patent application publication 2003/0033316.

26.   With respect to claims 11 and 12, Debiez teaches of an external WORM module that stores the block number of blocks written which are not to be overwritten (fig. 1; paragraph 0011).

Morgan teaches of static modifiable and non-modifiable storage device such as a PROM or EPROM (paragraph 0057).

It would have been obvious to one of ordinary skill in the art having the teachings

of Curtis, Debiez and Morgan at the time of the invention to locate the storage state bits

of Curtis in the WORM module of Debiez on a PROM or EPROM. By locating the

storage state bits of Curtis in the WORM module of Debiez, the data protection is no

longer reliant on the compatibility of the drive and can be accessed faster, reducing the

time to access the storage media (Debiez, paragraph 0008). Debiez expresses that it is

not possible to overwrite the block number stored in the WORM module, storing the

block numbers in a PROM as taught in Morgan would prohibit them from being

overwritten as will storing them in an EPROM. EPROM are completely erased only by

removing the chip from the circuit, removing the tape from the chip and exposing it to an

intense UV light for 20 minutes. As there is no other way to modify an EPROM, the

data within can't be modified by the computer it is located in.

27.   Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis as

applied to claim 8 above, and further in view of Debiez and Mambakkam et al., US

patent 6976623.

28.   With respect to claim 13, Debiez teaches of an external WORM module that

stores the block number of blocks written which are not to be overwritten (fig. 1;

paragraph 0011).

Mambakkam teaches of WORM flash memory(column 1, lines 60-65, column 3,

lines 45-49).

It would have been obvious to one of ordinary skill in the art having the teachings

of Curtis, Debiez and Mambakkam at the time of the invention to locate the storage

state bits of Curtis in the WORM module of Debiez on a WORM flash memory. By locating the storage state bits of Curtis in the WORM module of Debiez, the data protection is no longer reliant on the compatibility of the drive and can be accessed faster, reducing the time to access the storage media (Debiez, paragraph 0008). Debiez expresses that it is not possible to overwrite the block number stored in the WORM module, storing the block numbers in a WORM flash memory as taught in Mambakkam would prohibit them from being overwritten.

29.   Claim 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis as applied to claim 8 above, and further in view of Do et al., US patent application publication 2002/0136214.

With respect to claim 14, Do teaches of wherein said WORM memory is located inside a sealed portion of said data storage device (fig. 2; paragraph 0156).

It would have been obvious to one of ordinary skill in the art having the teachings of Curtis and Do at the time of the invention to include the data storage device of Curtis in the tamper-proof enclosure of Do. Their motivation would have been to ensure the data within is kept secure and can alert the proper party if unauthorized access is attempted (Do, paragraph 0156).

30.   Claim 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis as applied to claim 8 above, and further in view of Debiez et al., US patent application publication 2003/0126446 (hereinafter Debiez 2).

31.   With respect to claim 15, Debiez 2 teaches of wherein said WORM memory, further comprises: a memory device for storage of a date stamp associated with each

said LBA WORM utilization bit (paragraph 0021; it is abundantly clear to one of ordinary

skill in the art that the timestamps include a date value, otherwise the timestamps would

not be useful in authenticating the data).

It would have been obvious to one of ordinary skill in the art having the teachings

of Curtis and Debiez 2 at the time of the invention to timestamp the writes to the storage

sectors of Curtis as taught in Debiez 2. Their motivation would have been to provide

data integrity and timestamp authenticity to the stored data (Debiez 2, paragraph 0025).

Conclusion

32.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

33.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael C. Krofcheck whose telephone number is 571-

272-8193. The examiner can normally be reached on Monday - Friday.

34.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

35.   Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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